Editorial

Focusing on cognitive morbidity in childhood brain tumours.

In this issue, Thomas et al [1] report on a novel European collaboration involving 18 countries that will improve the measurement and clinical utility of cognitive and psychosocial assessments in children and young people (CYP) who survive brain tumours.

Survival rates in children treated for brain tumours have improved in recent years ranging from 60% to 85% for most tumours [2], thus raising considerations on the quality of survival (QoS) and the need for standardized methods to address the high level of psychosocial morbidity presented by survivors. The paper explains the logic, challenges and the outcome of a 10-year discussion between QoS representatives of the European Society of Paediatric Oncology- Brain Tumour working group to develop a cognitive assessment battery that is both feasible and reliable, and could facilitate international data set acquisition and comparison. The Core-Plus model, as it is named, is constituted by a core and supplementary data set for all CYP in Europe with ependymomas.

Modern treatment approaches have resulted in a lowering of the age of focal irradiation from three years to eighteen months of age [3], despite concerns over long-term effects from treatments [4]. The piloting of the Core-Plus model has highlighted important issues (e.g. challenges of testing children aged 3 to 4 years, test availability and validity across countries), and work is under way to further improve the model, for example by complementing it with measurement of broader factors (e.g. parental factors) and developmental questionnaires.

The Consensus model could facilitate successful global collaborations allowing greater insight into the treatment outcomes and developmental trajectories of young children treated with modern treatment protocols.

It has been recognised for decades that cognitive impairment is an established consequence of surviving a brain tumour when young. Surprisingly, we remain unaware of the magnitude of the neurocognitive burden and consequently limited in our interventions. The issue of long-term sequelae has been exponentially gaining attention not only within the research community but also at government policy levels [5]. The paper of Thomas et al. proposes a model of neurodevelopmental assessment that can be consistently and uniformly adopted, thus allowing the comparison of studies and treatments. The reliable identification and measurement of neurocognitive outcomes will provide insights into the mechanisms whereby a brain tumour and its treatments affect the brain throughout development. The creation of a large dataset in childhood ependymomas will facilitate prediction models that stratify children at risk of consequences and enhance early interventions. This European consensus will strongly support the routine incorporation of neuropsychology assessments as key outcomes (either primary or secondary) in a variety of clinical trials. The adoption of the proposed Core-plus protocol will allow significant insights to be formed in terms of neurodevelopmental sequelae, and the need for educational and psychosocial interventions. This model could also be adopted beyond brain tumour research to many other areas of paediatric neurology where there is a high burden of neuropsychological and neurodevelopmental consequences.

484 words

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